The evolution of the Icelandic fleet since 1950

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Introduction

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Aim

- Reconstruct the effort of the Icelandic fleet

Why

- Find reason for changes (management or other) - NOW
- Compare with global trend - NOW
- Reconstruct CPUE => stock size estimates - later

Database

- Information on all individual decked vessels operating
  - GRT, KW, years, type, building material, engine etc
  - Catch and effort (more limited)

Methods

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Where is data from?

- Ship registry database (from 1998)
- Fishermen's almanac
- Fisheries association catch database (from 1966)
- Ægir (monthly fisheries journal)
- Citizen's science
  - Jón Björnsson from Bólstaðarhlíð books
  - Þórhallur S. Gjöveraa, Emil P. Jónsson web pages
  - Memoirs from fishermen (122 books)

http://thsof.123.is/
http://emilpall.123.is/

Problems

- Formal registry numbers only from 1966
  - tracking boats much more difficult before 1966
- Complete catch database only from 1966
- Lack of information (e.g. GRT or KW), minor problem after 1950
- GRT, “old” GRT and GT
- Inconsistency among sources (e.g. year scrapped)

Number of vessels

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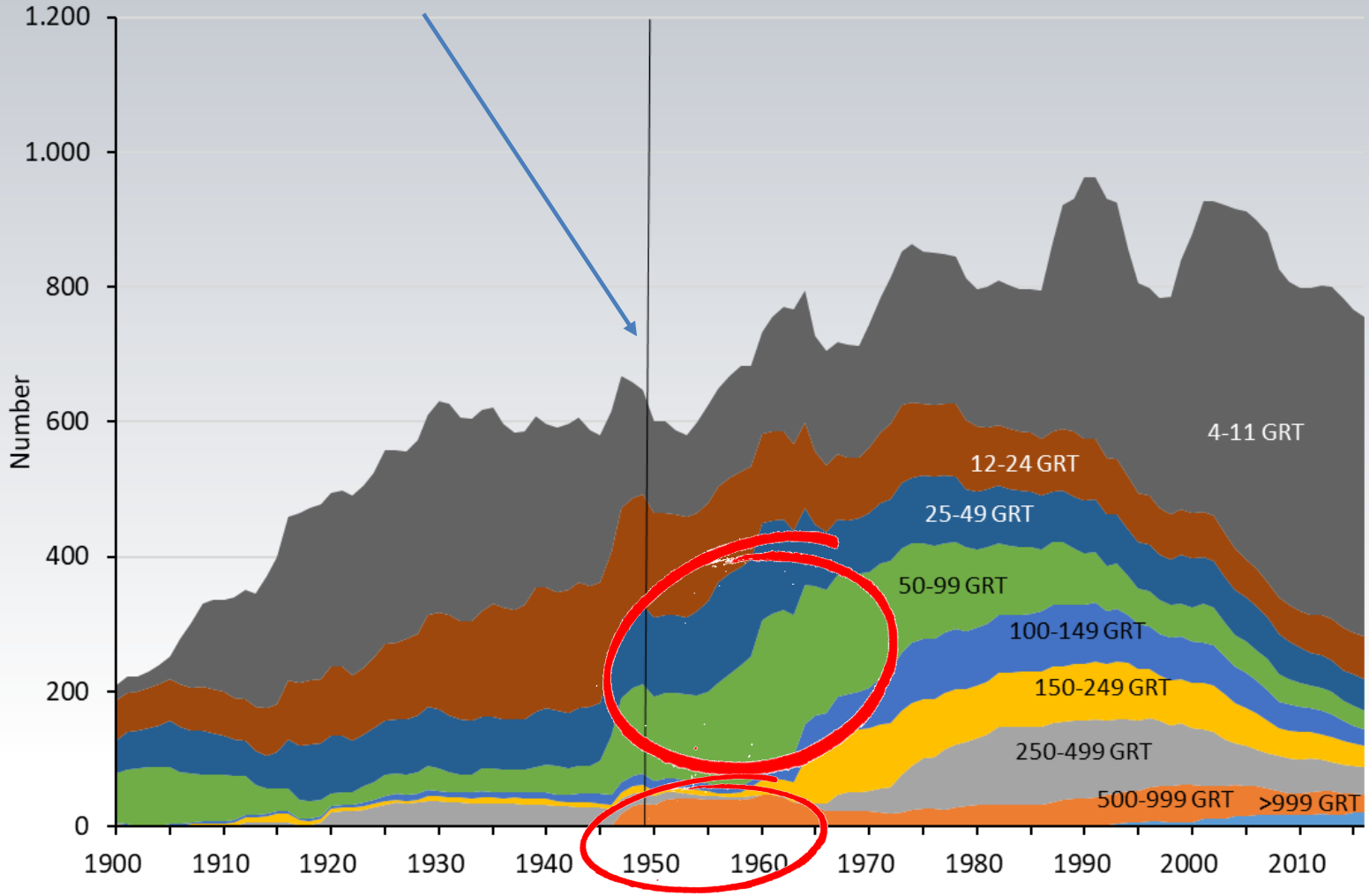
Situation 1950

- New steel steam trawlers fishing cod (some herring)
- Mostly medium sized timber motor boats fishing cod and herring



Volume of vessels

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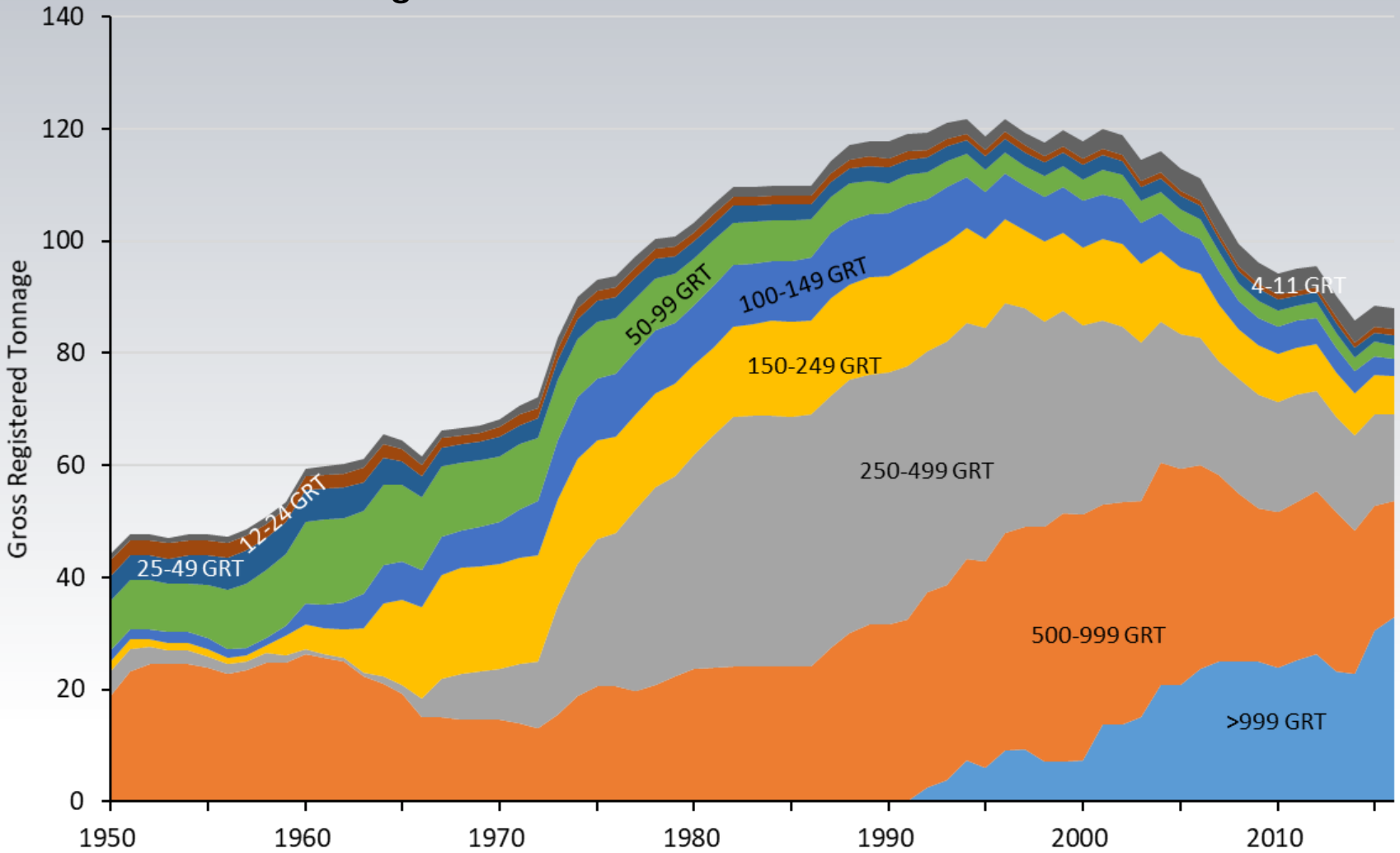
Total GRT from 1950 to 2016

- 2 x larger now
- Shrinking since 2000



Total power of vessels

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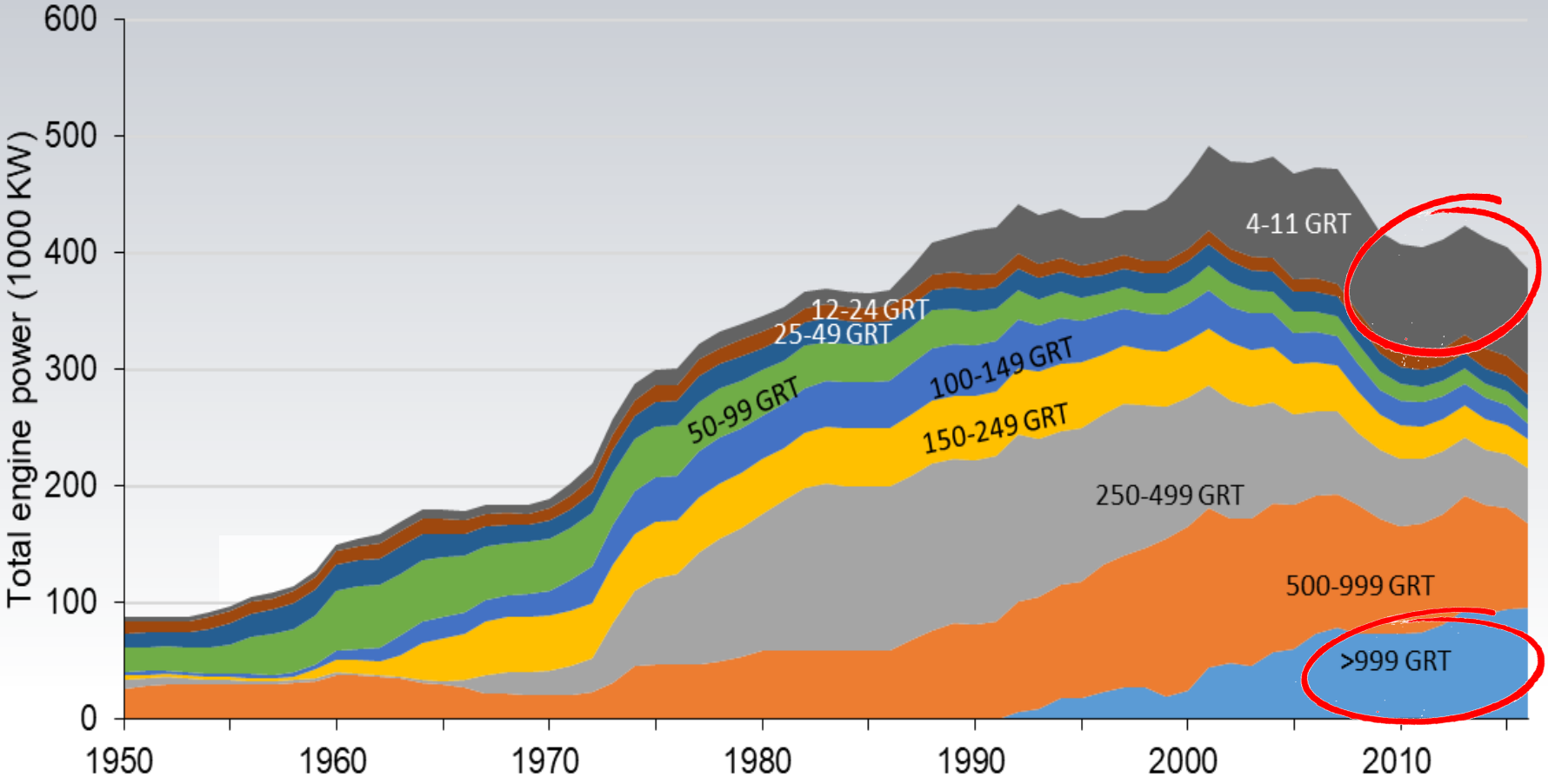
The total engine power of the fleet (KW)

- Two directions
  - Very large boats
  - Very small (and powerful) boats



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Average power of vessels

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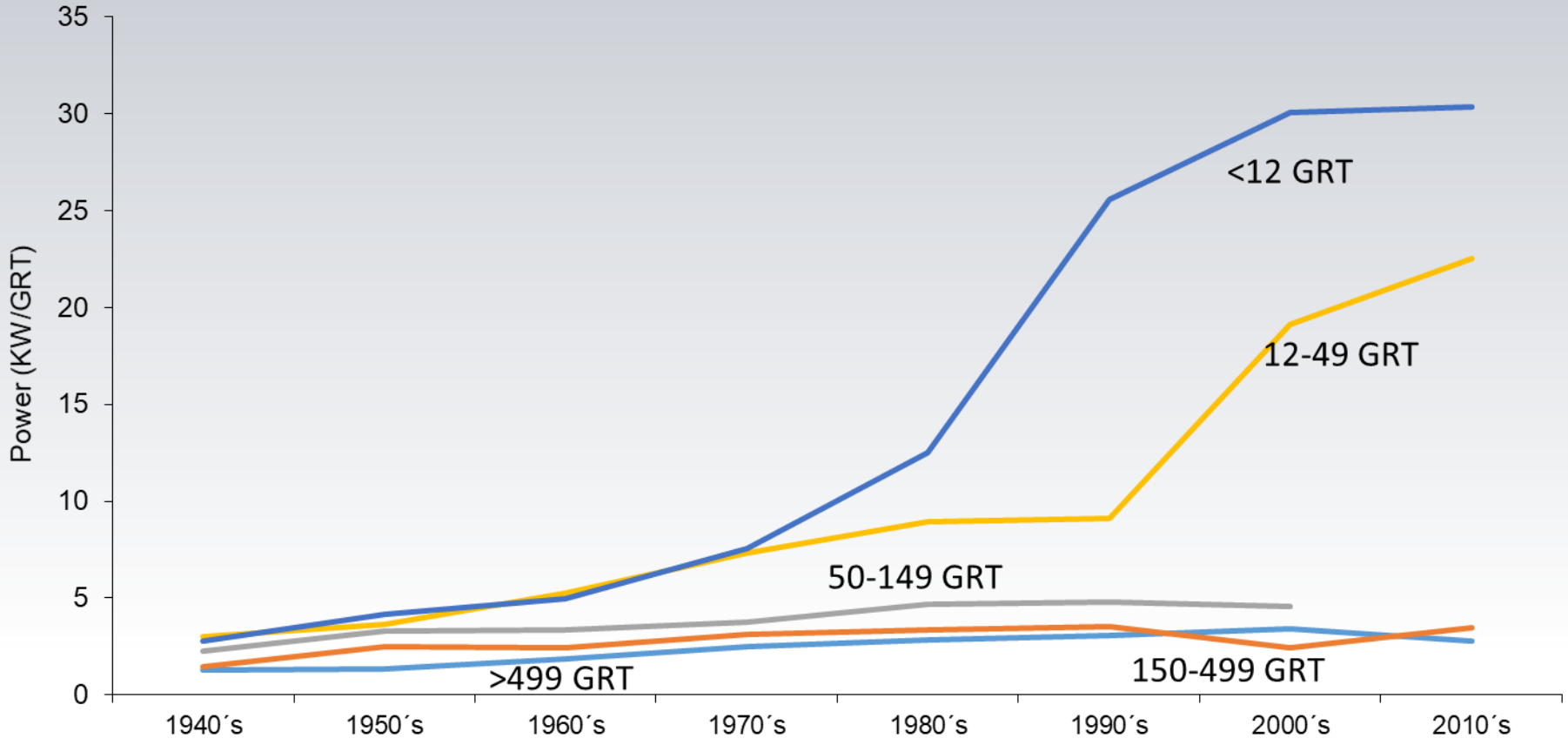
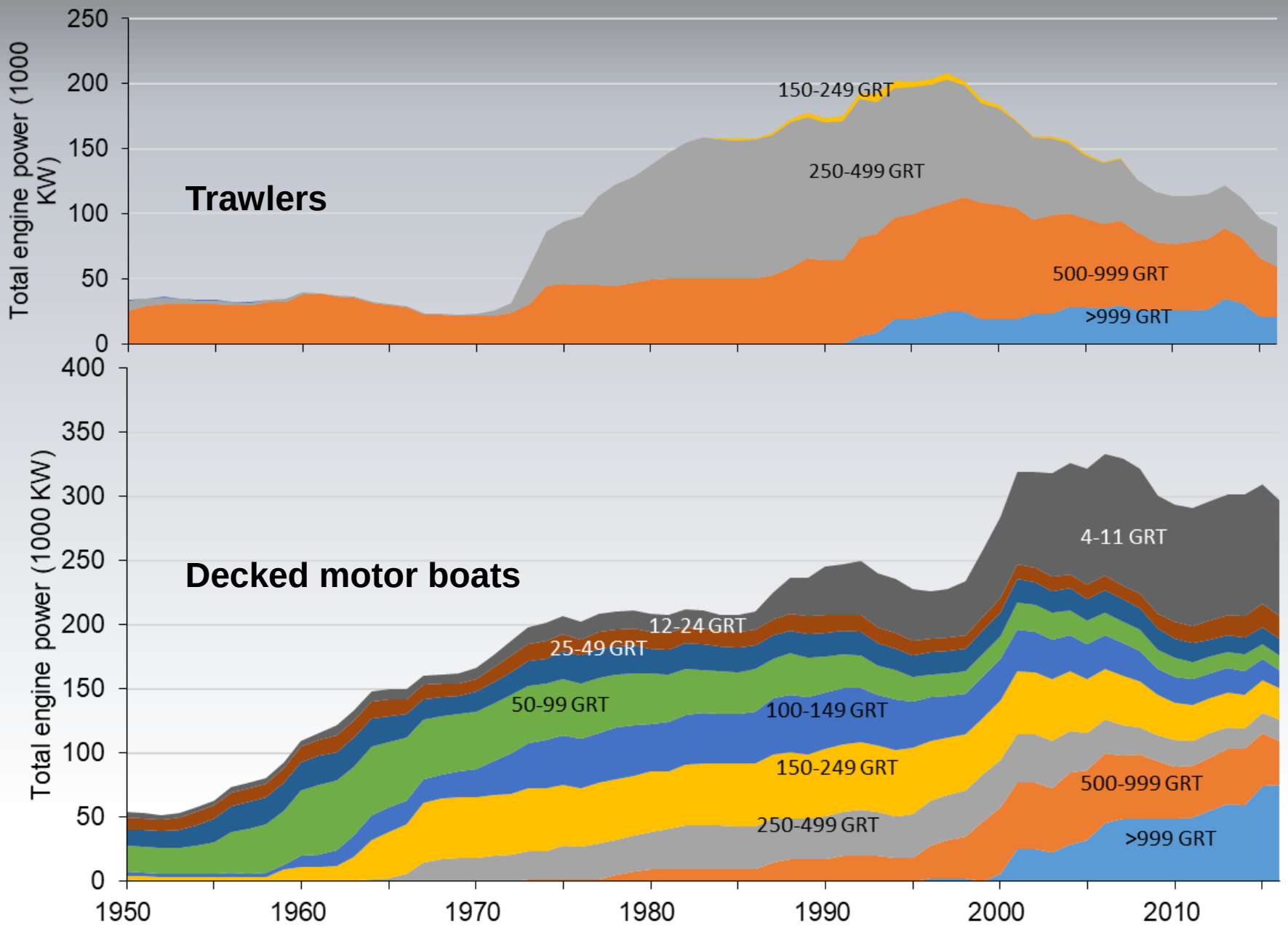
The power of new boats (KW/GRT)

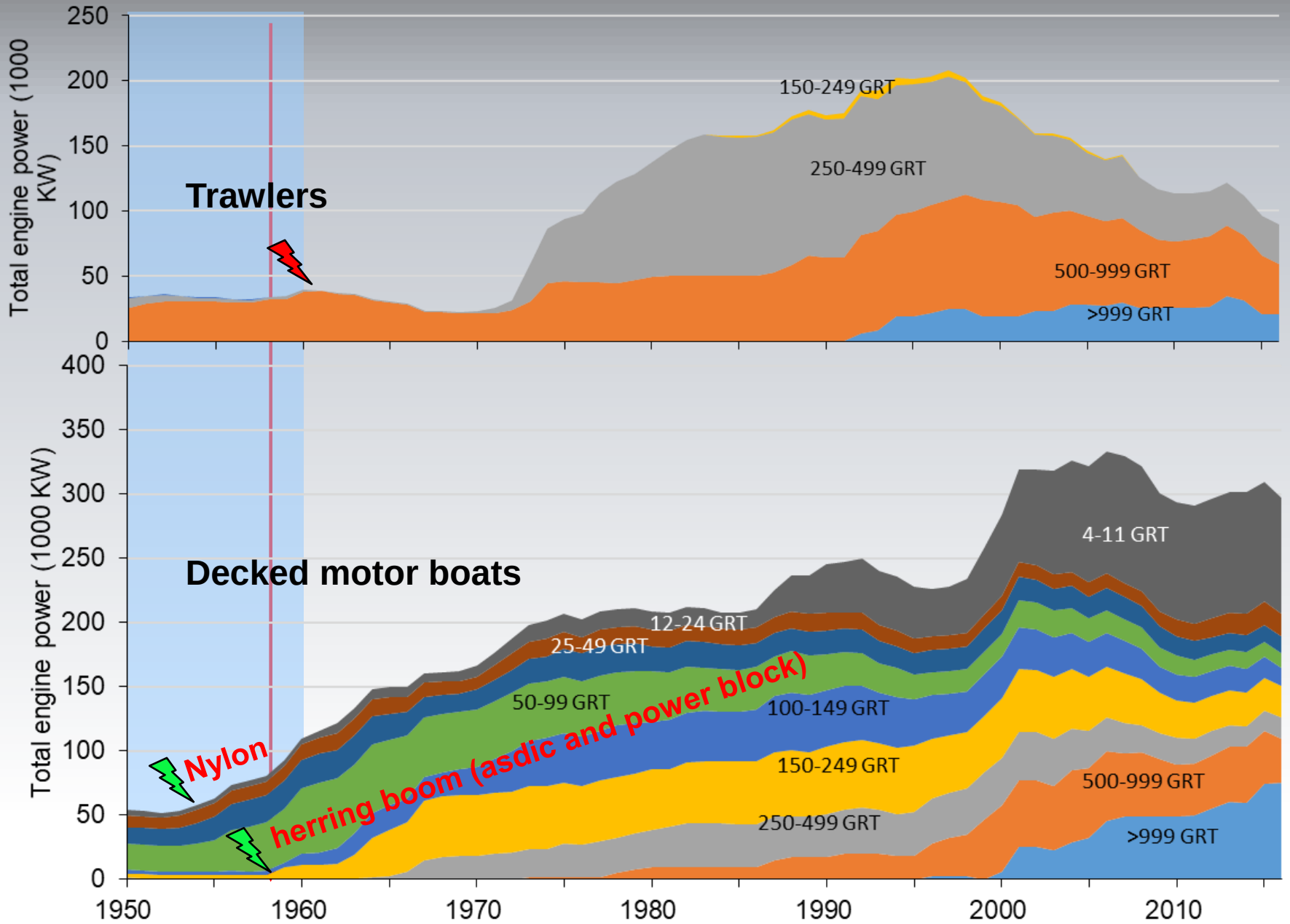
- Very rapid increase (10x) in small boats
- Slower increase in larger boats (2x), declining now



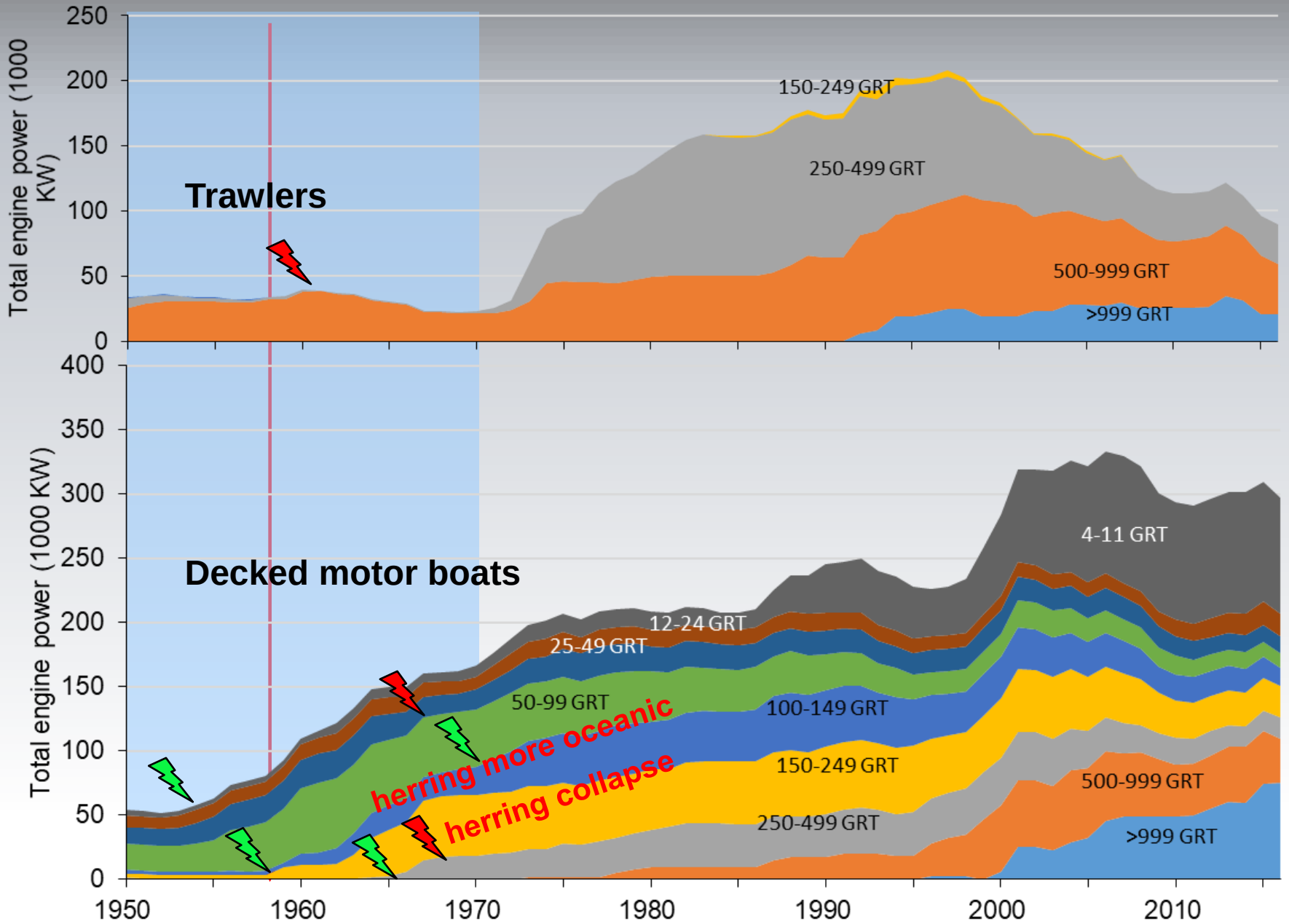
Engine power (KW) of vessel by size categories (GRT)



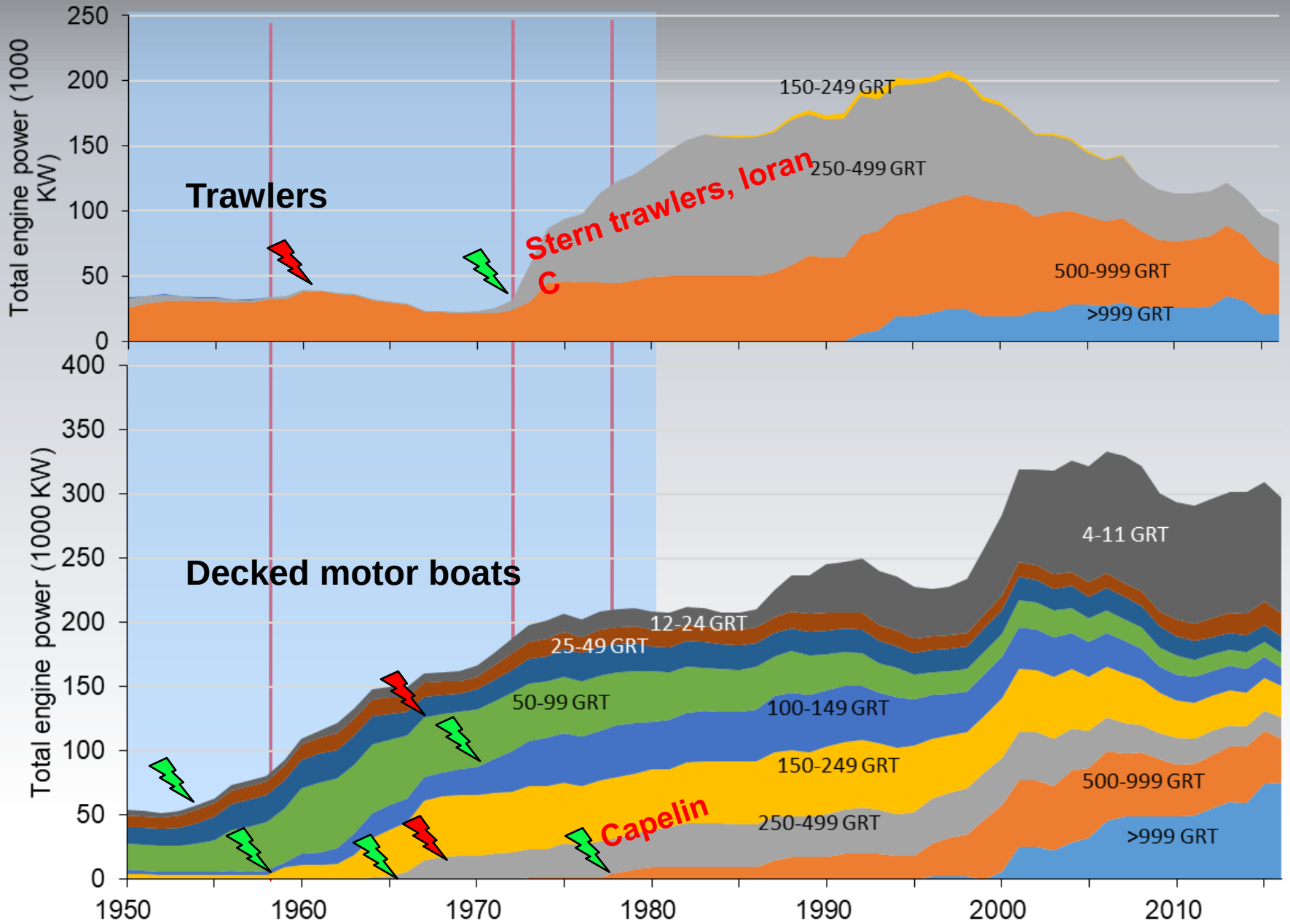
EEZ to 12 NM (also applies to Icelandic trawling)



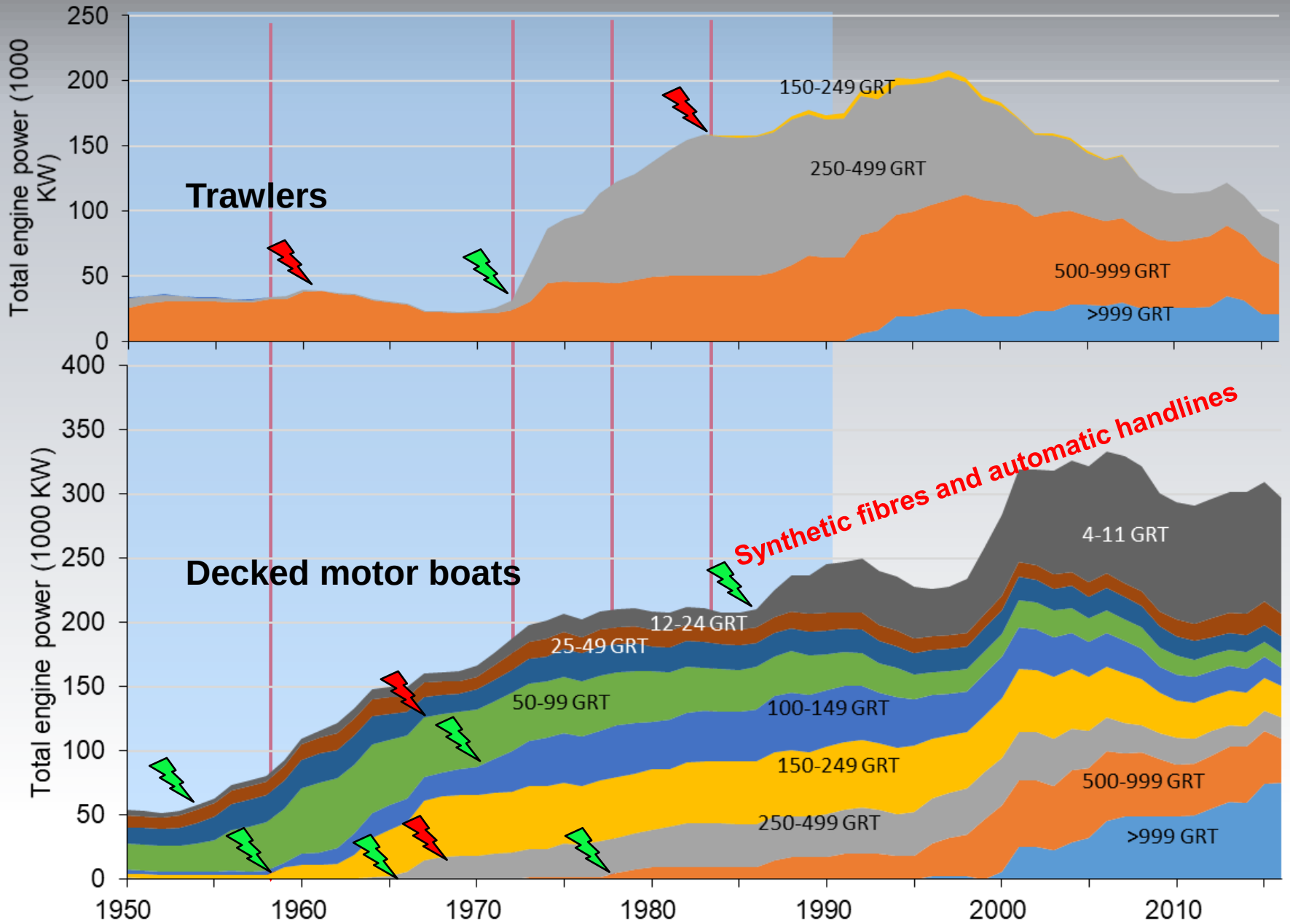
Mesh size regulations

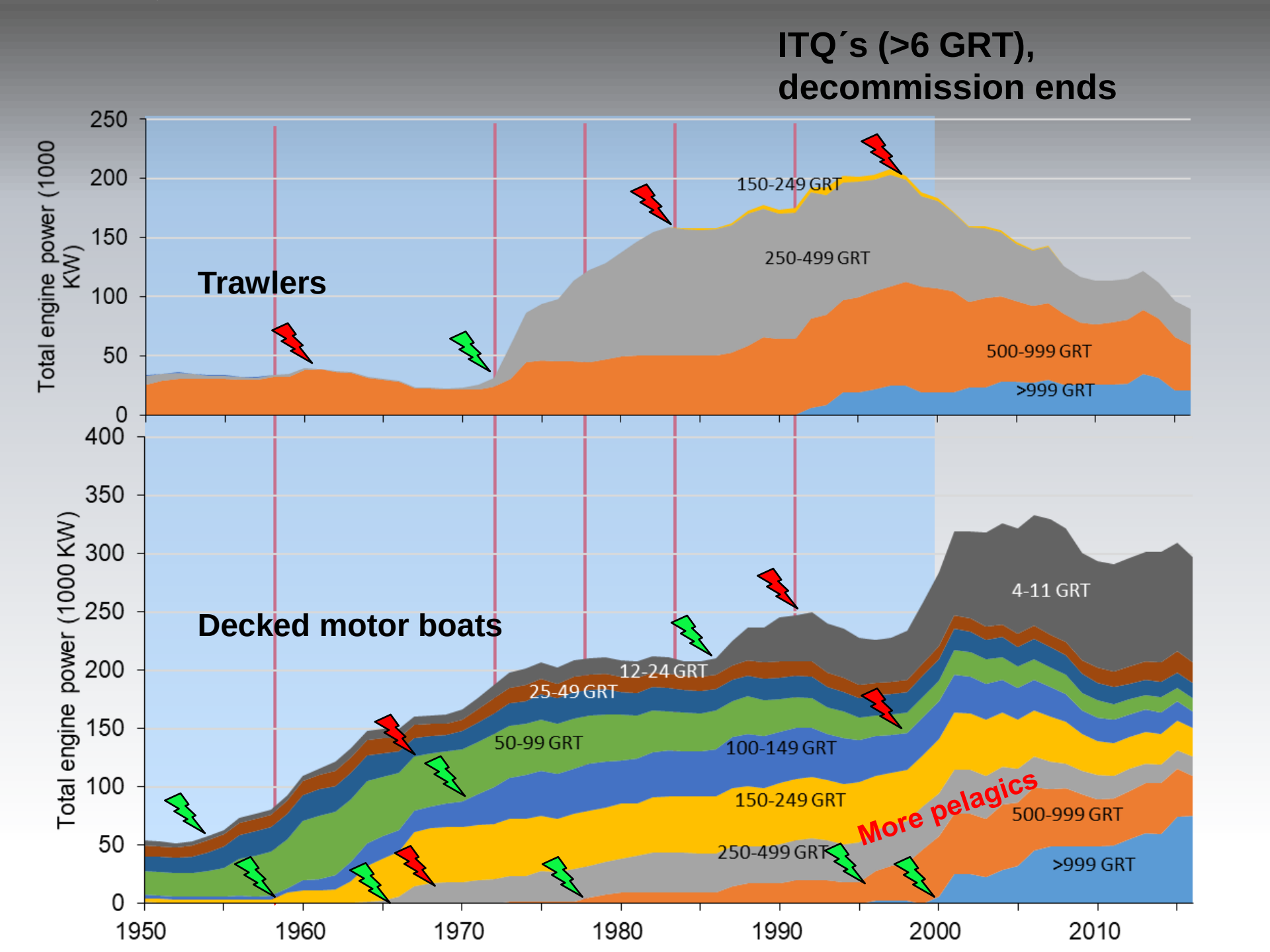


EEZ to 50 and 200NM, effort control trawlers

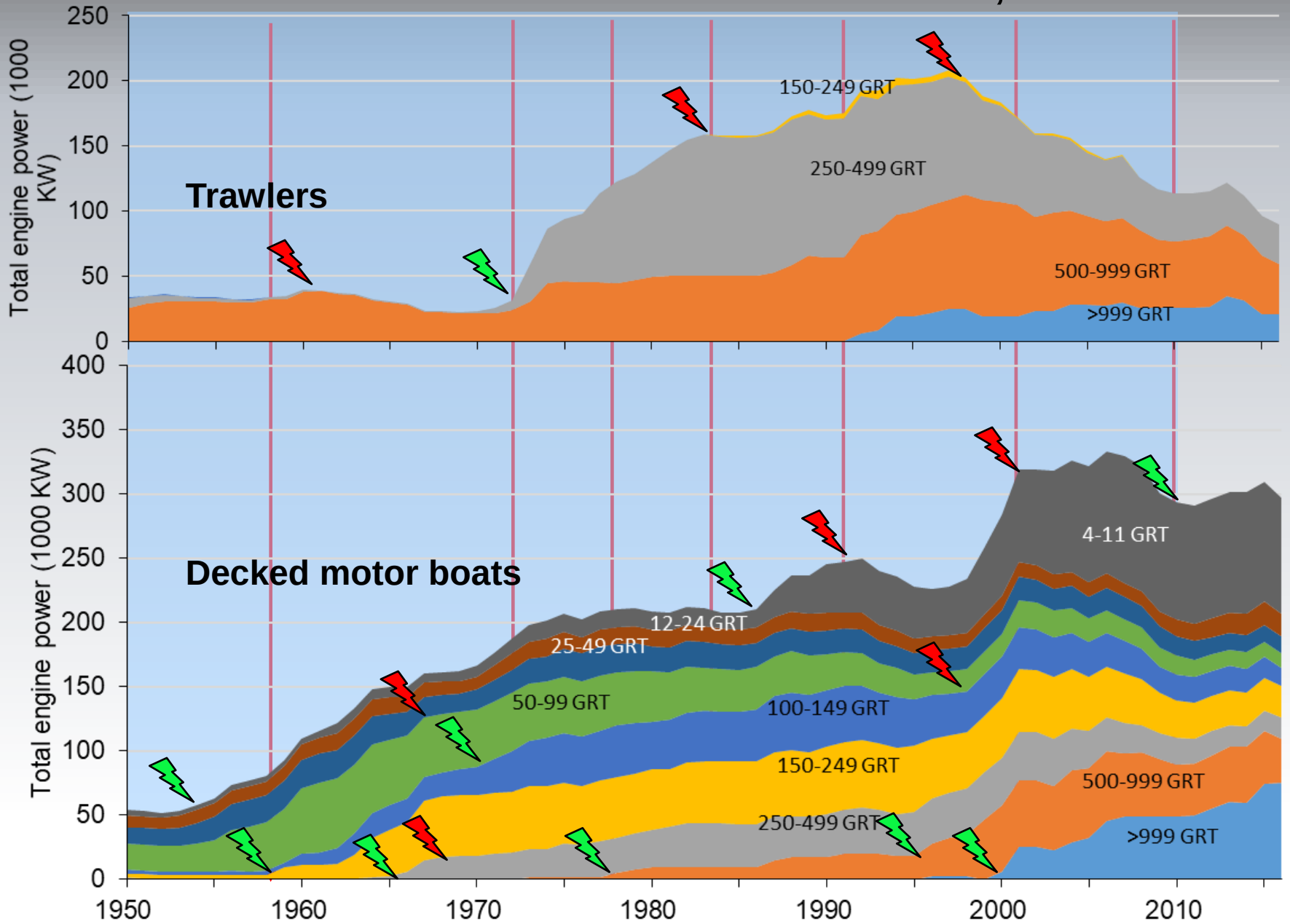


IQ´s larger vessels, decommission

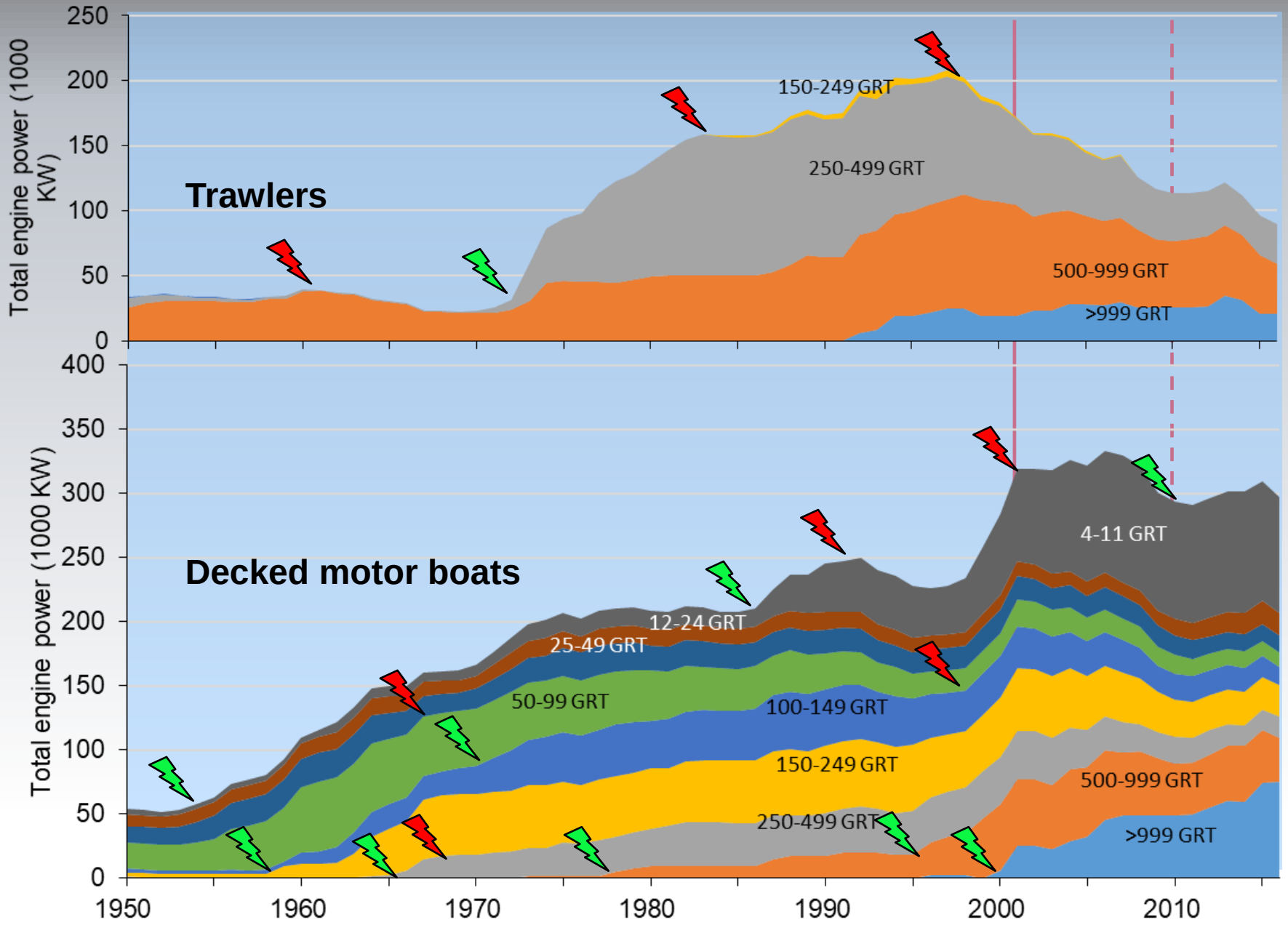



ITQ´s (>6 GRT), decommission ends
Trawlers
Total engine power (1000 KW)
250
200
150
100
50
0
150-249 GRT
250-499 GRT
500-999 GRT
>999 GRT
Decked motor boats
Total engine power (1000 KW)
400
350
300
250
200
150
100
50
0
4-11 GRT
12-24 GRT
25-49 GRT
50-99 GRT
100-149 GRT
150-249 GRT
250-499 GRT
500-999 GRT
>999 GRT
More pelagics
1950
1960
1970
1980
1990
2000
2010

More limit on smaller boats, summer fisheries



Stable regime



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Then

Photos: Hreiðar Valtýsson
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≈ **<u>45</u> trawlers** fishing **groundfish** (and some herring**)**
≈ **<u>400</u> medium** sized boats fishing **groundfish** and **herring** (multipurpose)
≈ **<u>150</u> small** boats fishing **cod**

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Now

Photos: Þorgeir Baldursson (http://thorgeirbald.123.is)

- ≈ **<u>40</u> trawlers** fishing **groundfish** (not pelagics)
- ≈ **<u>25</u> large pelagic** vessels (new)
- ≈ **<u>200</u> medium** sized boats fishing **groundfish** (not pelagics)
- ≈ **<u>500</u> small** boats fishing **cod**

KW days at sea

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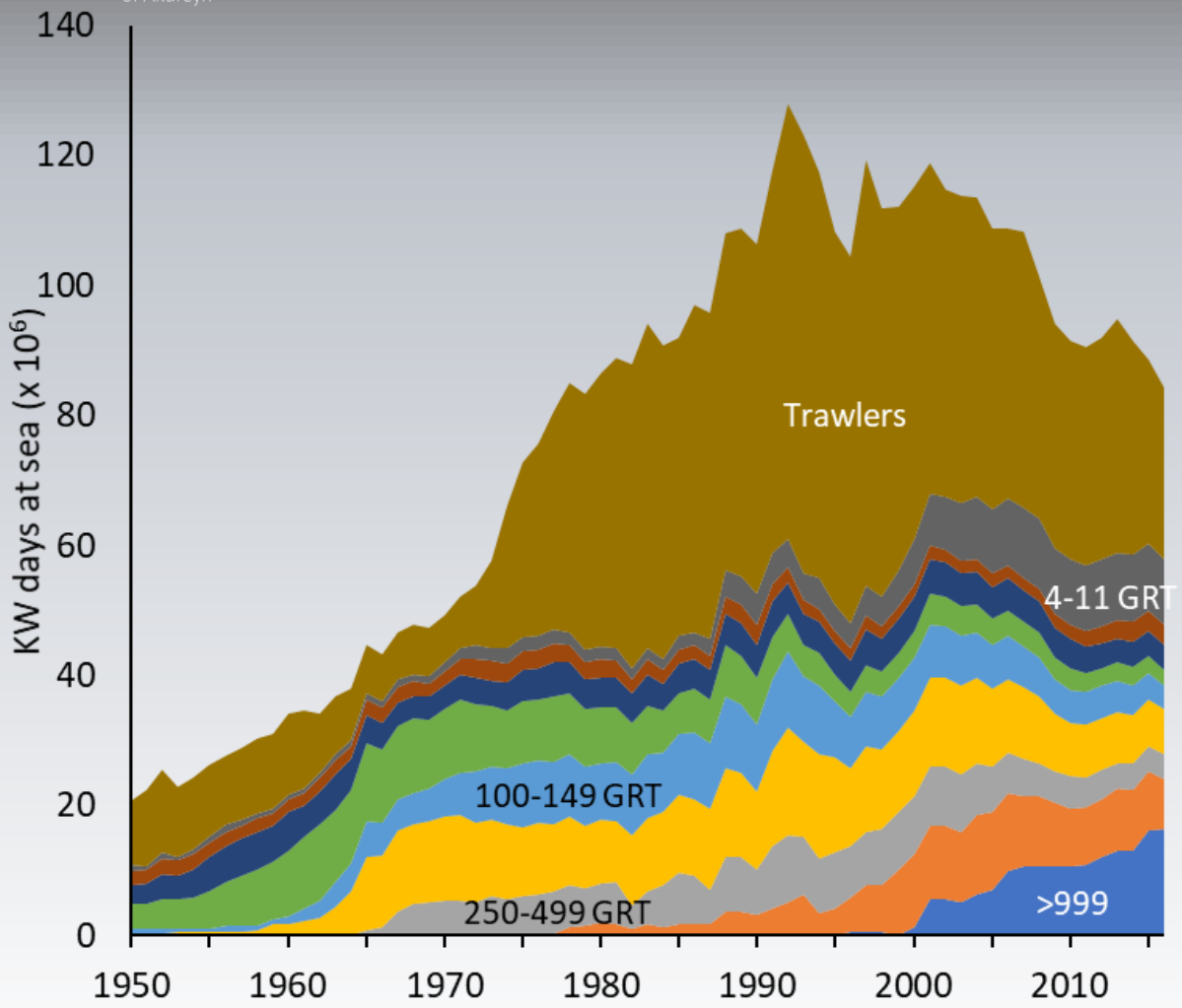

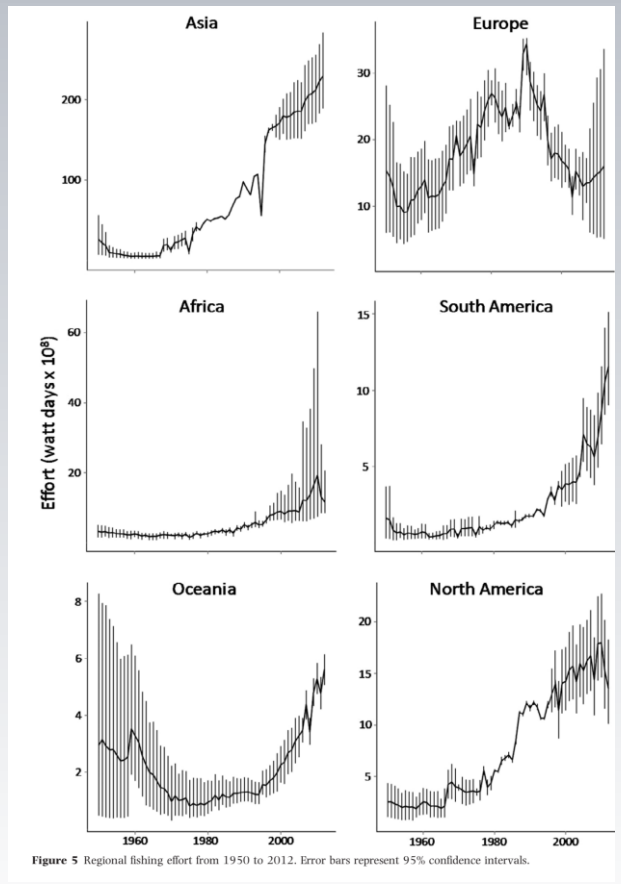

Figure 5 Regional fishing effort from 1950 to 2012. Error bars represent 95% confidence intervals.

- **Is days at sea a useful concept ?**

Bell, J. D. et al (2016).
Fish and Fisheries 18 (3)

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Conclusion

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- Successfully reduced fleet
  - Since the 1990´s
  - Reduced number of trawlers and medium boats
- Largest sectors now
  - Very small but powerful groundfish vessels (KW)
  - Very large pelagic vessels (GRT)
- Specialization
  - Pelagic or groundfish, not both
  - Seasonality decline
  - Modern technology
- Growth rapid, decline slow

The end

Thank you